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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,155	10/24/2000	Michael Douglas Hill	8284	3316

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EXAMINER

MOHAMEDULLA, SALEHA R

ART UNIT PAPER NUMBER

1756

DATE MAILED: 02/05/2003 ⁹

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/695,155

Applicant(s)

HILL ET AL.

Examiner

Saleha R. Mohamedulla

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 19-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4,5,7.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

1. The Applicant's election of Group I, claims 1-18, in Paper No. 8 is acknowledged. Because the Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 1-18 are considered and claims 19-26 are withdrawn from consideration.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

3. The photomicrographs representing Figures 32-41 and 45-46 are acceptable as Applicant has shown that the photographs are the only practicable medium for illustrating the claimed invention.

Information Disclosure Statement

4. In the IDS filed October 15, 2002, in Paper No. 7, references are crossed out as they are duplicates of references disclosed in the IDS filed December 26, 2001 in Paper No. 5.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 8-16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by US# 5,500,277 to Trakhan et al.

Trakhan teaches an endless belt and carries a web of cellulosic fibers from a forming wire to a drying apparatus, typically a heated drum, such as a Yankee drying drum. The belt 10 comprises a reinforcing structure 12 and a pattern layer 30. The reinforcing structure 12 is further comprised of at least two layers, a web facing first layer 16 and a machine facing second layer 18. Each layer 16, 18 of the reinforcing structure 12 is further comprised of interwoven machine direction yarns 120, 220 and cross-machine direction yarns 122, 222. The reinforcing structure 12 further comprises tie yarns 322 interwoven with the respective yarns 100 of the web facing layer 16 and the machine facing layer 18 (col. 5, lines 10-25). The second primary element of the belt 10 is the pattern layer 30. The pattern layer 30 is cast from a resin onto the top of the first layer 16 of the reinforcing structure 12. The pattern layer 30 penetrates the reinforcing structure 12 and is cured into any desired binary pattern by irradiating liquid resin with actinic radiation through a binary mask having opaque sections and transparent sections. The belt has two opposed surfaces, a web contacting surface 40 disposed on the outwardly facing surface of the pattern layer 30 and an opposed backside 42. (col. 5, lines 30-

Art Unit: 1756

41). Therefore, Trakhan teaches claim 1 and 11 limitations of a mask comprising a structure having a top side and a bottom side opposite the top side.

The belt may further comprise conduits 44 that may be discrete, as shown, if an essentially continuous pattern layer 30 is selected. Alternatively, the pattern layer 30 can be discrete and the conduits 44 may be essentially continuous. Such an arrangement is easily envisioned by one skilled in the art as generally opposite that illustrated in FIG. 1. Of course, it will be recognized by one skilled in the art that any combination of discrete and continuous patterns may be selected as well (col. 5, lines 50-65). Therefore, Trakhan teaches claim 3 limitations that the opaque regions comprise a continuous or discrete pattern.

Trakhan teaches that opaque machine direction yarns 220 or cross-machine direction yarns 222 may be utilized to mask the portion of the reinforcing structure 12 between such machine direction yarns 220 and cross-machine direction yarns 222 and the backside 42 of the belt 10 to create a backside texture. The yarns 220, 222 of the second layer 18 may be made opaque by coating the outsides of such yarns 220, 222, adding fillers such as carbon black or titanium dioxide, etc. (col. 6, lines 10-30).

Trakhan teaches that actinic radiation does not pass through the yarns 220, 222 of the second layer 18 which are substantially opaque. This results in a backside texture on the machine facing surface of the second layer 18. The backside texture is registered with the yarns 220, 222 of the second layer 18 having the second opacity and which are substantially opaque to actinic radiation (col. 6, lines 28-35). Trakhan teaches that different yarns 100 of the belt 10 have a different opacity (col. 7, lines 1-5).

Art Unit: 1756

In addition, Trakhan also teaches that the pattern layer 30 extends from the backside 42 of the second layer 18 of the reinforcing structure 12, outwardly from and beyond the first layer 16 of the reinforcing structure 12. Some portions of the pattern layer 30 do not extend below particular yarns 220, 222 of the second layer 18 of the reinforcing structure 12. Therefore, Trakhan teaches claim 8, 11 and 18 limitations that the mask has a first pattern of transparent regions and opaque regions, and a second pattern of protrusions outwardly extending from at least one of the top and the bottom side of the mask. As shown in Figure 2, pattern layer 30 comprises discrete protuberances, therefore, Trakhan teaches claims 9 and 10 limitations. The figure shows that the pattern layer and other regions form a non-random repeating pattern. Because some portions of the layer 30 do not extend below particular yarns of the second layer, Trakhan teaches claim 13 that the opaque regions comprise distal surfaces of the protrusions. The figure also shows that the pattern of opaque and transparent regions is independent from the pattern layer 30 and that the regions are juxtaposed. Therefore, Trakhan teaches claim 14 and 15 limitations.

In any embodiment, the machine direction and/or cross-machine direction yarns 220, 222 of the second layer 18 have a second opacity and/or second specific opacity, which are greater than the first opacity and/or first specific opacity, respectively, of the yarns 120, 122 of the first layer 16. Therefore, Trakhan teaches claim 1 and 16 limitations that the mask has a pattern of transparent and opaque regions, wherein the opaque regions comprise at least first opaque regions having a first opacity and second opaque regions having a second opacity different from the first opacity. Trakhan also teaches claim 5 limitations that the second opaque regions comprise regions that are adjacent to the first opaque regions. The yarns 220, 222 of the second

Art Unit: 1756

layer are substantially opaque to actinic radiation (col. 5, lines 50-60). It is more important that the first layer 16 have multiple and more closely spaced cross-machine direction yarns 122, to provide sufficient fiber support (col. 8, lines 1-5).

Trakhan teaches that the yarns are woven together in a weave pattern as shown in the figures (col. 7, lines 15-35), therefore Trakhan teaches claim 2, 4 and 12 limitations that the patterns comprise non-random and repeating patterns.

Claims 16 and 18 are rejected as Trakhan teaches the structural features of the mask. The claims are drawn to the mask itself and not the process of using the mask. The limitations in the claims drawn to the regions shielding areas of curable material are not given patentable weight as they are drawn to the intended use of the mask and not to the structural features of the mask itself.

6. Claims 1-5, 8-16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by US# 5,914,202 to Nguyen et al.

Nguyen teaches a phase shifting mask. Nguyen teaches a reticle is provided through which incident light is passed to define predetermined areas of illumination on a light sensitive photoresist surface. The reticle comprises a first transmission level film producing transmitted light of a first intensity, a second transmission level film producing transmitted light of a second intensity greater than the first intensity, and a third transmission level film producing transmitted light of a third intensity greater than the second intensity (col. 4, lines 35-45). The second transmission level film transmits more than approximately 10%, but less than approximately 90%, of incident light, whereby the attenuation characteristics of the second transmission level

Art Unit: 1756

film are approximately mid-way between the first and third transmission level film attenuation characteristics, such that the reticle, when directed to a light sensitive surface, forms at least three distinctive intensities on the illuminated areas of photoresist (col. 4, lines 45-55). Therefore, Nguyen teaches a mask with a top and bottom side where the mask has a pattern of transparent regions and opaque regions having regions with first and second opacities. As shown in the figures, Nguyen also teaches protrusions extending from one of the sides of the mask. Therefore, Nguyen teaches claim 1, 8, 11, 16 and 18 limitations. The claims are drawn to the mask itself and limitations drawn to the intended use of the mask do not materially limit the structural features of the mask itself. The figures show claim 2-5, 9, 10 and 12 limitations that the transparent, first opaque and second opaque regions comprise non-random, repeating and discrete patterns, where the second opaque regions are adjacent the first opaque regions. The first opaque regions of Nguyen comprise distal surfaces of the protrusions (second opaque regions). The first opaque regions are independent and separable from the second opaque regions and the mask comprises elements that are juxtaposed. Therefore, Nguyen teaches claim 13-15 limitations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1756

7. Claims 6, 7, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US# 5,500,277 to Trakhan et al.


Trakhan teaches the limitations discussed above in paragraph 5. Trakhan does not specifically teach that the opaque regions comprise third opaque regions having an intermediate opacity or that the regions comprise a one-directional gradient opacity. However, Trakhan teaches that the local opacity may vary throughout a given cross section of the yarn 100 (col. 7, lines 5-10). Therefore, it is obvious to one of ordinary skill in the art that Trakhan envisions embodiments where the local opacity varies in one direction across the cross section of the yarn. Also, because the local opacity varies, it is obvious to one of ordinary skill in the art that a third opacity, different from the first and second opacity, would occur in the varying opacity.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Saleha Mohamedulla whose telephone number is (703) 308-1260. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310. The After Final fax phone number is (703) 872-9311. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

srm

January 24, 2003


MARK F. HUFF
SUPERVISORY PATENT EXAMINER
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